Revista Ibérica de Aracnología, nº **31** (31/12/2017): 3–7.
Grupo Ibérico de Aracnología (S.E.A.). ISSN: 1576 - 9518.

A NEW SPIDER SPECIES, *ZELOTES ANNAMARIEAE* SP. N. (ARANEAE: GNAPHOSIDAE), FROM THE CANARY ISLAND OF LA GOMERA, SPAIN

Jørgen Lissner

Natural History Museum Aarhus. Wilhelm Meyers Allé 210. Universitetsparken, 8000 Aarhus C, Denmark
— lissner@nathist.dk

Abstract: A new gnaphosid spider, *Zelotes annamarieae* **sp. n.**, is described from specimens collected on the island of La Gomera, Spain. The new species is related to but differs distinctly from *Heser nilicola* (O. Pickard-Cambridge, 1874) and *H. schmitzi* (Kulczyński, 1899), both of which are known to occur on the Canary Islands. Some views on the current perception of *Heser* Tuneva, 2004 are presented. A proposal is made to transfer back *H. nilicola* and *H. schmitzi* to *Zelotes* Gistel, 1848 along with the more recently described *H. hispanus* Senglet, 2012.
Key words: Araneae, Gnaphosidae, Zelotini, *Zelotes*, *Heser*, taxonomy, Canary Islands

Una especie nueva de araña, *Zelotes annamarieae* sp. n. (Araneae: Gnaphosidae), de la isla canaria de La Gomera, España
Resumen: Se describe una nueva araña gnafósida, *Zelotes annamarieae* **sp. n.**, a partir de ejemplares recogidos en la isla de La Gomera, España. La especie nueva está emparentada con, pero difiere claramente de, *Heser nilicola* (O. Pickard-Cambridge, 1874) y *H. schmitzi* (Kulczyński, 1899), ambas conocidas de las Islas Canarias. Se aportan algunas observaciones sobre el concepto actual del género *Heser* Tuneva, 2004, y se propone la restitución de *H. nilicola* y *H. schmitzi* al género *Zelotes* Gistel, 1848 junto con la más recientemente descrita *H. hispanus* Senglet, 2012.
Palabras clave: Araneae, Gnaphosidae, Zelotini, *Zelotes*, *Heser*, taxonomía, Islas Canarias.

Taxonomy / Taxonomía: *Zelotes annamarieae* **sp. n.**

Introduction

About 50 species of Ground Spiders (Gnaphosidae) are known from the Canary Islands with some 80 % endemic to one or a few islands (Oromí *et al.,* 2009; World Spider Catalog, 2017). The gnaphosid tribe Zelotini (also known as the *Zelotes*-group) is represented by 15 species in the Canary Islands (Bosselaers, 2012; World Spider Catalog, 2017; Wunderlich, 2011). For one island, La Gomera, Zelotini is only known by three species of *Setaphis* Simon, 1893 and one species of *Urozelotes* Mello-Leitão, 1938 (Oromí *et al.,* 2009). During a survey of the spiders of La Gomera the first member of *Zelotes* Gistel, 1848 for this island was found. The specimens could not be assigned to any described *Zelotes* or *Heser* Tuneva, 2004 species, hence treated here as being new to science. The aim of this study is to describe this new species and present data on habitat and phenology.

Material and methods

Specimens of the new species were collected under stones on the ground or running about. Except for one adult female, all were subadults at time of capture and were kept in containers and fed with various insects until after final moults. Habitus photos of live, adult specimens were taken tabletop. Illustrations were created from photos of selected features using a Leica Wild M10 fitted with a Leica DFC425 digital camera or a Leica 205 stereomicroscope fitted with a Leica DFC450 digital camera. The microscopes were connected to computers with Leica Application Suite software, Zerene Stacker software and the vector graphics editor Inkscape.

The following abbreviations are used in the text: AER: anterior eye row, PER: posterior eye row, AME: anterior median eyes, PME: posterior median eyes, ALE: anterior lateral eyes, PLE: posterior lateral eyes, d: dorsal, p: prolateral, v: ventral, r: retrolateral, PLS: posterior lateral spinnerets, CJL = collection Jørgen Lissner, NHMD = Natural History Museum of Denmark.

The numbers of spines on the proximal, median, and distal thirds of a given surface of a leg segment are presented using the system of Platnick & Shadab (1975).

Zelotes annamarieae Lissner sp. n.

Fig. 1-5.

HOLOTYPE. SPAIN: Canary Islands, La Gomera, Vallehermoso, Fortaleza de Chipude (28.0995N, 17.2768W), rock steppe (1230 m), 22.IV.2015, 1♂ (matured in captivity in early May), leg. Anna Marie Sørensen, CJL- 10513, deposited at NHMD.

PARATYPE. Same locality and date as for holotype, 1♀ (matured in captivity in early May), Jørgen Lissner leg., CJL-10513, deposited at NHMD.

OTHER MATERIAL EXAMINED. Same locality as for holotype, 04.IV.2017, 1♂ (matured in captivity in early May), Jørgen Lissner leg., CJL-11769; La Gomera, San Sebastián de La Gomera, Puntallana (28.1294N, 17.1072W), coastal rock steppe with fossil dunes and halophytes (5 m), 05.IV.2017, 1♀, Jørgen Lissner leg., CJL- 11899; *Heser schmitzi*, Tenerife, Arona, La Estrella, Calle Lomo Negro (28.0155N, 16.6810W), beneath roadside litter in area with banana plantations (37 m), 02.IV.2017, 1♂1♀, Jørgen Lissner leg., CJL-11924; *Heser nilicola*, France, Corsica, Serriera, abandoned village Pinetu (42.3157N, 8.7126E), stony, formerly agricultural area with bush encroachment (320 m), 08.VII.2013, 1♀, Jørgen Lissner leg., CJL- 9017.



Fig 1. *Zelotes annamarieae* **sp. n.** Habitus of male. **Fig 2.** *Zelotes annamarieae* **sp. n.** Habitus of female. **Fig. 3.** *Zelotes annamarieae* **sp. n.**, male. **a.** Head dorsal. **b.** Facies. **c.** Prosoma ventral. **d.** Mouthparts

DIAGNOSE. The new species is distinctive and easily recognized by the shape of the prominent and curved embolus of the male palp and by the central spatulate plate of the female epigyne. The closest relatives include two *Heser* species which both occur in the Canary Islands: *Heser nilicola* (O. Pickard-Cambridge, 1874) and *Heser schmitzi* (Kulczyński, 1899), none of which possess the nearly circular curved embolus (as seen in retrolateral view) and both possess differently shaped epigynal plates.

ETYMOLOGY. The species is dedicated to the collector of the holotype, my wonderful wife Anna Marie Sørensen.

DESCRIPTION OF MALE. Measurements (n=2): body length 3.61-4.12, carapace length 1.62-2.25, width 1.20-1.77, abdomen 1.90-2.64. Eye sizes and interdistances: AME 0.035, ALE 0.068, PME 0.040 x 0.056, PLE 0.056; AME-AME 0.049, AME-ALE 0.011, PME-PME 0.040, PME-PLE 0.041, Width of AER 0.266, PER 0.312. Height of clypeus 0.061 at AME and 0.040 at ALE.

Colour: This is a jet-black species when seen in dorsal view, except for brown tarsi (Fig. 1). Venter of cephalothorax, coxae and abdomen grey-brown, only lung operculae are pale.

Cephalothorax: Carapace with sparse, black hairs. Three strong but short and blunt spines are found between AME and

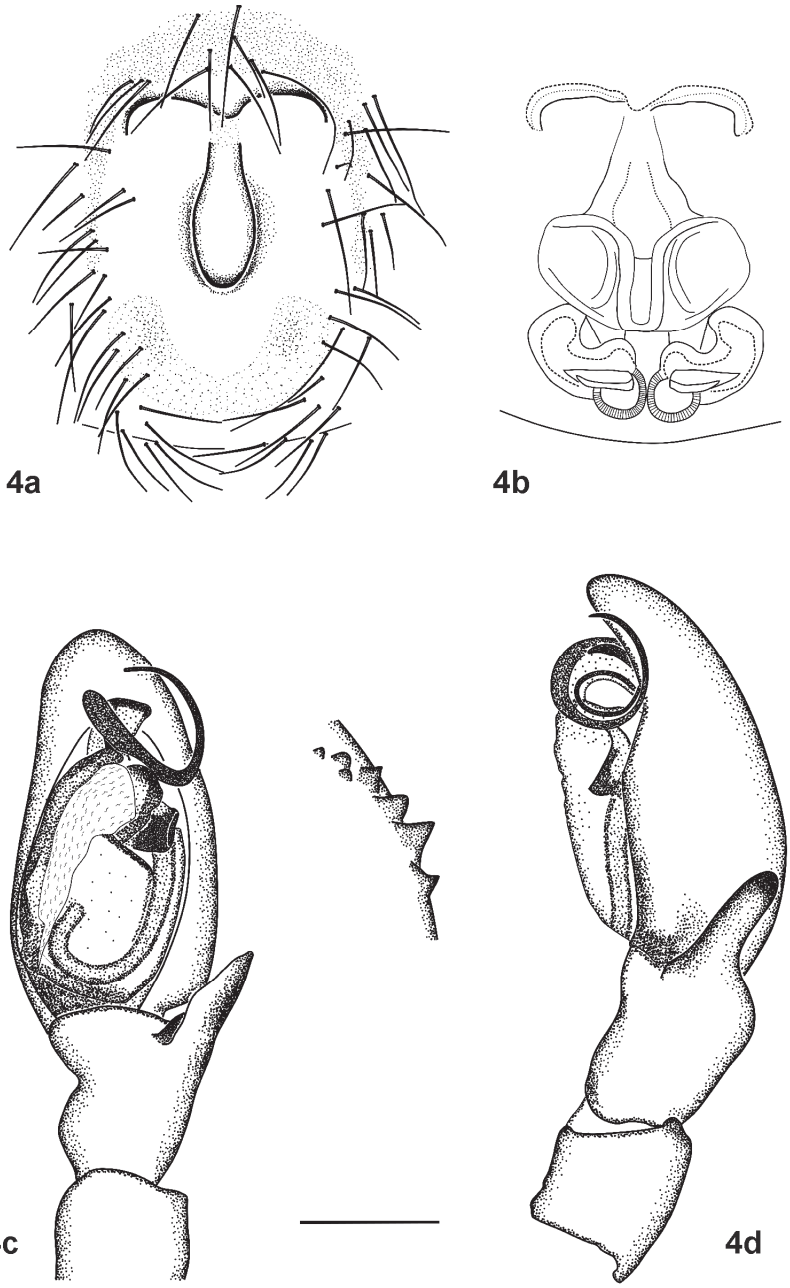


Fig. 4. *Zelotes annamarieae* **sp. n. a.** Epigyne in ventral view. **b.** Vulva in dorsal view. **c.** Left male palp in ventral view. **d.** Left male palp in retrolateral view. **e.** Dentition of right chelicer in posterior view (male). Scale bar **a-d** 0.2 mm.

frontal border of carapace. A long forward projecting spine is seen below each ALE. Fovea short but distinct. From above PER very slightly procurv or straight (Fig. 3a). AER recurv and not as wide as PER. PME pearly and slightly oblique, AME black. Chelicerae with strong forward projecting setae on prolateral surfaces (Figs. 3a, b). Promargin with four teeth and retromargin with three minute denticles forming a triangle (Fig. 4e). Sternum ovoid, truncated anteriorly, not projecting between coxae IV (Fig 3c). Maxillae constricted at middle (Fig. 3d). Labium ligulate, about twice as long as wide (Fig. 3d).

Legs: Leg formula 4-1-2-3. Metatarsus III and less distinct IV ventrally-apically with a preening comb. Tarsi scopulate, tarsi IV less so. Tarsi with two dentate claws. Claw tufts lacking. Leg spination pattern (only segments bearing spines listed): femora: I d 1-1-0; II d 1-1-0, p 0-0-1; III d 1-1-0, p 0-1-1, r 0-1-1; IV d 1-1-0, p 0-1-1, r 0-1-1; patellae: III r 0-1-0; tibiae: III p 1-1-1, v 2-2-2, r 1-1-1 (1-1-2 in one female or 0-1-1 in one side in second female); IV p 1-1-1, v 2-2-2, r 1-1-1; metatarsi: II v 2-1-0 or 2-0-0; III p 1-2-2, v 2-2-1, r 1-1-1; IV p 1-2-2, v 2-2-1, r 1-2-2.

Abdomen: Densely covered with very fine hairs and with additional medium-long hairs scattered along the entire surface. Stronger and more closely grouped hairs are seen across the frontal edge of abdomen. Scutum approximately triangular in dorsal view occupying slightly less than ¼ of abdominal length. PLS with variable numbers of piriform spigots: 5+5 in holotype (CJL-10513) or 3+3 (CJL-11769).

Pedipalp (Figs. 4c-d, 5c-d): Palpal tibial retrolateral apophysis shorter than tibia. With a strong median apophysis forming a wide hook. Embolus long, coiled, gradually coming to a fine tip.

DESCRIPTION OF FEMALE.

Measurements (n=2), body length 4.4-4.8, carapace length 1.95-2.08, width 1.50-1.55, abdomen 2.36-2.62.

Colour. General appearance as in Fig 2, very similar to male. The female shows only some minor differences to the male: 1) Cheliceral dentition is with four teeth as in the male but retromargin with only one minute denticle situated slightly posterior to a point midway between the two teeth closest to the fang. 2) The labium is relatively longer than in the male, about 2.5 times longer than wide. 3) Leg spination shows a minor deviation from the male as indicated in the spination formulas provided for the male. 4) PLS with 4+4 piriform spigots in both specimens counted.

Epigyne: With an anteriorly situated spatulate epigynal plate (Fig. 4a, 5a). The edge of the plate is more strongly sclerotized posteriorly. Anterior epigynal margin with two ear-shaped protrusions connected by a lightly sclerotized ridge. Vulva with massive epigynal ducts (Fig. 4b, 5b).

COMMENTS

Tuneva (2004) delineated *Heser* as a homogenous subgroup of *Zelotes*. Members of *Heser* are characterized by an elongated, hook-shaped median apophysis, an embolus originating basally on the prolateral side, continuing to and transversing the distal edge of the bulbus, and by the absence of coiled median and blind paramedian vulval ducts (Tuneva, 2004). They are also light coloured species with a light grey or yellow brown carapace and a grey abdomen (Bosselaers, 2010; Deltshev, 2016; Tuneva, 2004). Apart from the characters described by Tuneva (2004), true *Heser* species have unusually large PME which are larger than PLE. This can be seen in the illustrations in Tuneva (2004), Bosselaers (2010) and

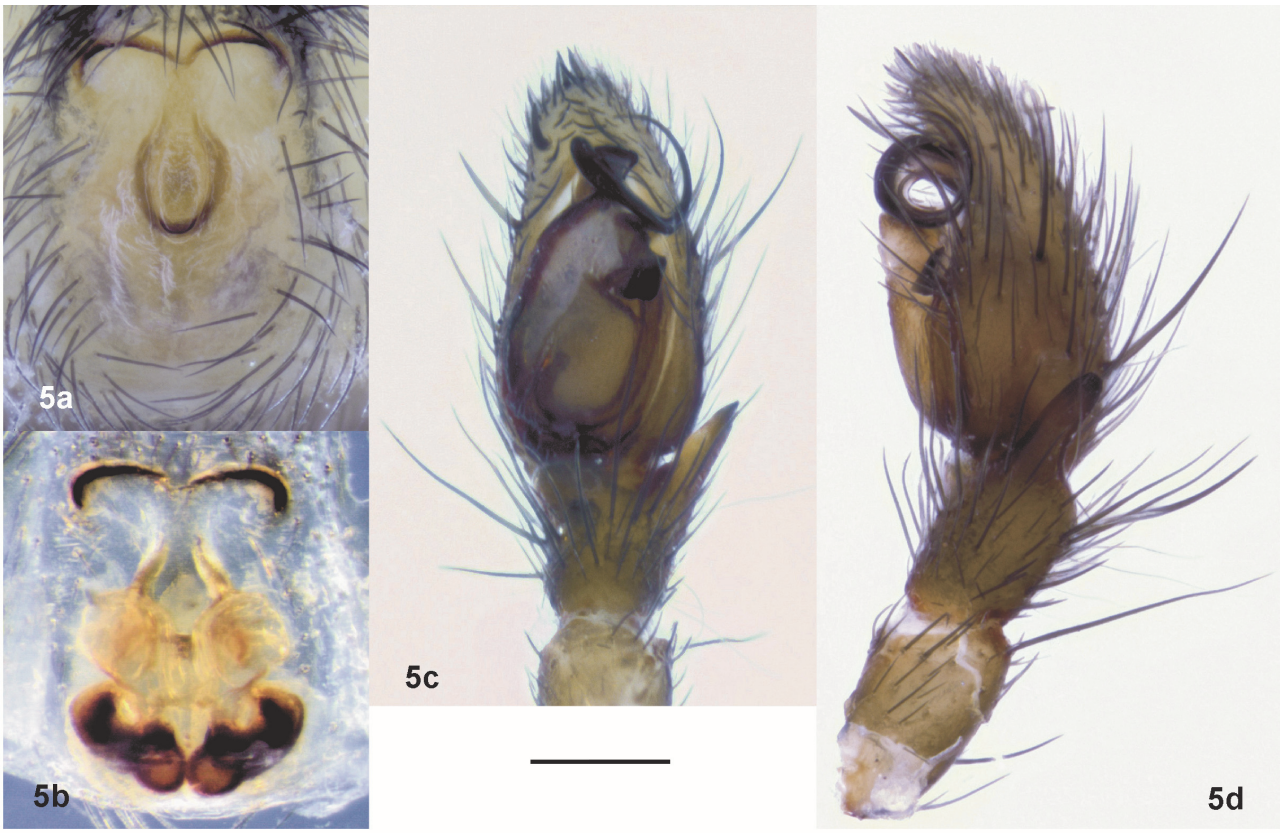




Fig. 5. *Zelotes annamarieae* **sp. n.**, photos. **a.** Epigyne in ventral view. **b.** Vulva in dorsal view. **c.** Left male palp in ventral view. **d.** Left male palp in retrolateral view. Scale bar **a**-**d** 0.2 mm. **Fig. 6.** *Zelotes annamarieae* **sp. n.** Rock-steppe habitat of type locality.

Deltshev (2016). Senglet (2012) transferred some additional *Zelotes* species to *Heser*, including two species considered here as the closest relatives of *Zelotes annamarieae* sp. n., namely *H. nilicola* and *H. schmitzi*. These two species were assigned to a *Heser nilicola*-group along with a newly described species, *H. hispanus* Senglet, 2012 (Senglet, 2012).

However, these species are not encompassed by the rather narrow genus description provided by Tuneva (2004). According to this author *Heser* is restricted to lighter coloured species with an elongated hook-shaped median apophysis. In the species added to the genus by Senglet the carapace is mid-brown to dark brown and the abdomen dark grey or black. The median apophysis is not drawn out in a long, curved hook, only *H. nilicola* possess a short spur which is not curved (see illustrations in Levy (1998); Senglet (2012) or photo in Oger (2017)). Furthermore, the PME are not larger than PLE in members of the *Heser nilicola*-group, but distinctly smaller (*H. nilicola*, *H. schmitzi*) or nearly of the same size (*H. hispanus*). It should also be noted that Murphy (2007:38), some years after the erection of *Heser* by Tuneva, maintained *H. nilicola* and *H. schmitzi* in a *Z. nilicola* subgroup. In conclusion, the current placement of the members of the *Heser nilicola*-group in *Heser* seems unjustified and hence the proposal is made to transfer back these species to *Zelotes*. A separate, new genus for this group of zelotine species could be useful for identification purposes. However, with the current rapid development of DNA techniques, erection of new Gnaphosid genera should perhaps await support from genetic studies of this diverse spider family. With the above in mind, the new species described here is placed in *Zelotes* rather than in *Heser*.

Zelotes annamarieae sp. n. is the seventh *Zelotes* species known from the Canary Islands (not including two *Heser* species) and the fourth species endemic to the islands, the other endemic species are *Zelotes paraegregius* Wunderlich, 2012, *Zelotes manzae* (Strand, 1908), *Zelotes henderickxi* Bosselaers, 2012 (World Spider Catalog, 2017).

Distribution, ecology and phenology. Only known from two localities in La Gomera, from the southern part of the plateau of Fortaleza de Chipude on the roundtrip trail delineated by a row of stones in each side (Fig. 6) and from the coastal plain at Puntallana. The specimens were collected under stones on the ground or running about in early morning sunshine. Three subadults were found in April on high ground (Fortaleza de Chipude, 1230 m), all of which matured in early May. One adult female was found near sea level (Puntallana, 5 m) in April. This suggests a maturity period in late spring – early summer and that specimens may mature earlier at lower elevations than at higher. However, more material needs to be collected before more detailed conclusions can be made on phenology.

Acknowledgements

Nikolaj Scharff is thanked for permission to use the Leica equipment at NHMD, University of Copenhagen. Jan Bosselaers, Beerse, Belgium, is thanked for useful comments on an earlier version of the manuscript.

References

Bosselaers, J. 2010. A new species of *Heser* Tuneva, 2005 (Araneae, Gnaphosidae) from the south of India. *ZooKeys,* **73**: 1-11.

Bosselaers, J. 2012. Two interesting new ground spiders (Araneae) from the Canary Islands and Greece. *Serket,* **13**: 83-90.

Deltshev, C. 2016. A new spider species, *Heser stoevi* sp. nov., from Turkmenistan (Araneae: Gnaphosidae). *Biodiversity Data Journal,* **4**: 1-11.

Levy, G. 1998. The ground-spider genera *Setaphis*, *Trachyzelotes*, *Zelotes*, and *Drassyllus* (Araneae: Gnaphosidae) in Israel. *Israel Journal of Zoology,* **44**: 93-158.

Murphy, J.A. 2007. *Gnaphosid Genera of the World*. British Arachnological Society, St Neots, Cambs.

Oger, P. 2017. *Les araignées de Belgique et de France.* Available from: http://arachno.piwigo.com/ (September 7, 2017).

Oromí, P., M. Baéz & N.E. Macías 2009. *Lista de especies silvestres de Canarias Hongos, plantas y animales terrestres*. In: M. Arechavaleta, N. Rodríguez, N. Zurita, and A. García (coord.), Territorial, Gobierno de Canarias, pp. 202-212.

Platnick, N.I. & M.U. Shadab 1975. A Revision of the Spider Genus Gnaphosa (Araneae, Gnaphosidae) in America. *Bulletin of the American Museum of Natural History,* **155**: 1-66.

Senglet, A. 2012. *Civizelotes* new genus, and other new or little known Zelotinae (Araneae, Gnaphosidae). *Revue Suisse De Zoologie*, **119**: 501-528.

Tuneva, T.K. 2004. A contribution on the gnaphosid spider fauna (Araneae: Gnaphosidae) of east Kazakhstan. *Arthropoda Selecta* Special Issue, **1**: 319-332.

World Spider Catalog 2017. World Spider Catalog. *Natural History Museum Bern, version 18.0*. Available from: http://wsc.nmbe.ch. (September 7, 2017).

Wunderlich, J. 2011. Contribution to the spider fauna (Araneae) of the Canary Islands. *Beiträge zur Araneologie,* **6**: 352-426.